

DIELECTRIC BACKFILL FOR OPTICAL MODULATORS USING RIDGED SUBSTRATES

ABSTRACT OF THE DISCLOSURE

An optical modulator configured in accordance with the present invention utilizes a ridged optical waveguide substrate. The interferometric arms of the optical waveguide are formed within the substrate ridges. A dielectric material having a dielectric constant less than the dielectric constant of the substrate material is formed on the substrate in the areas surrounding the ridges. The drive signal and ground electrodes are formed above the dielectric layer and positioned such that portions of the electrodes are located adjacent to the substrate ridges (and, consequently, proximate to the waveguide arms). In one embodiment, the height of the dielectric layer is less than the height of the ridges. In another embodiment, the height of the dielectric layer is equal to the height of the ridges.